

FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

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The Boeing Company, Application for Authority
to Launch and Operate a Non-Geostationary Low
Earth Orbit Satellite System in the Fixed Satellite
Service.

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File No. SAT-LOA-20160622-00058

OPPOSITION OF T-MOBILE USA, INC.

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OPPOSITION OF T-MOBILE USA, INC.

T-Mobile USA, Inc. (“T-Mobile”)^{1/} submits this opposition to The Boeing Company’s (“Boeing”) Application for authority to launch and operate a non-geostationary satellite orbit (“NGSO”) fixed satellite service (“FSS”) system operating in low Earth orbit in the 37.5-42 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz bands.^{2/} The Application is inconsistent with rules the Commission recently adopted in the *Spectrum Frontiers* proceeding and pre-judges decisions that the Commission is likely to make in the ongoing phase of that proceeding.^{3/} Even if there

^{1/} T-Mobile USA, Inc. is a wholly-owned subsidiary of T-Mobile US, Inc., a publicly traded company.

^{2/} The Boeing Company, Application for Authority to Launch and Operate a Non-Geostationary Low Earth Orbit Satellite System in the Fixed Satellite Service, IBFS File No. SAT-LOA-20160622-00058 (filed June 22, 2016) (“Application”); *see also*, *Satellite Policy Branch Information, Boeing Application Accepted for Filing in Part, IBFS File No. SAT-LOA-20160622-00058, Cut-Off Established for Additional NGSO-Like Satellite Applications or Petitions for Operations in the 37.5-40.0 GHz, 40.0-42.0 GHz, 47.2-50.2 GHz, and 50.4-51.4 GHz Bands*, Public Notice, DA 16-1244 (rel. Nov. 1, 2016) (“Public Notice”).

^{3/} *See Use of Spectrum Bands Above 24 GHz For Mobile Radio Services; Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5-28.35 GHz and 37.5-40 GHz Bands; Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band; Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42-43.5 GHz Band; Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0- 38.0 GHz and 40.0-40.5 GHz for Government Operations*, Report and Order and Further Notice of Proposed Rulemaking, FCC 16-89, 2016 FCC LEXIS 2470 (2016) (subparts referred to respectively as the “Report and Order” and the “FNPRM”).

were not a current proceeding addressing the spectrum specified in the Application, the fundamental changes to spectrum use contemplated by the Application could only be resolved in a rulemaking proceeding.

I. INTRODUCTION AND BACKGROUND

T-Mobile, including the MetroPCS brand, offers nationwide wireless voice, text, and data services to over 69 million subscribers.^{4/} In the third quarter of 2016, T-Mobile added 2 million net customers – marking the 14th consecutive quarter in which the company has generated more than one million net customer additions.^{5/} T-Mobile also saw continued growth – for the past 13 quarters in a row – in both branded prepaid and postpaid phone customers.^{6/} Within the space of three years, the footprint for T-Mobile’s 4G Long Term Evolution (“LTE”) network – the Nation’s the fastest growing 4G LTE network – has gone from covering zero to covering approximately 312 million Americans, carrying 55% more data per customer than Verizon.^{7/} T-Mobile has deployed Wideband LTE to 231 million people, and is expanding Extended Range LTE to enhance coverage and in-building performance.^{8/} In fact, T-Mobile already launched

^{4/} See T-Mobile News Release, *T-Mobile Delivers Strong Customer Growth And Financial Results*, (Oct. 24, 2016), <https://newsroom.t-mobile.com/news-and-blogs/q3-2016-earnings.htm> (“T-Mobile October News Release”).

^{5/} See *id.*

^{6/} See *id.*

^{7/} See T-Mobile News Release, *LTE Advanced is so 2014. We’re already on to the next big thing. Verizon is now 50% faster ... and still slower than T-Mobile!* (Sept. 6, 2016), <https://newsroom.t-mobile.com/news-and-blogs/lte-advanced.htm> (“T-Mobile September News Release”) (also noting that T-Mobile “now has near parity with the once dominant Verizon coverage, reaching 99.7% of the consumers Verizon does”); see also T-Mobile October News Release.

^{8/} See T-Mobile October News Release (“[E]nhancements included further deploying Wideband LTE to 231 million people[.] . . . T-Mobile is also continuing to build out Extended Range LTE, which operates on the Company’s low-band 700 MHz A-Block spectrum, to enhance coverage and in-building performance.”); T-Mobile News Release, *T-Mobile Extended Range LTE Now Covers 240 Million People -- and it’s Coming to Chicago* (Dec. 1, 2016), <https://newsroom.t-mobile.com/news-and-blogs/chicago-spectrum.htm>.

seven LTE Advanced technologies – more than anyone else in the industry.^{9/} All of the above investments benefit T-Mobile consumers, allowing them to stream three times more music, watch two times more video, and use 50% more data than any other carrier’s customers.^{10/}

Identifying new spectrum to meet these growing needs and the needs of other mobile wireless networks is vitally important for consumers and our Nation’s economy. As consumer use of data-intensive applications such as video and Internet access continues to rise, the demand for mobile network capacity will only increase.^{11/} And meeting these needs will continue to create jobs and drive the economic engine the wireless industry supports. Spectrum licensed to U.S. wireless carriers, for instance, generates more than \$400 billion annually in economic activity and wireless technologies further enable other sectors of the economy.^{12/} Recognizing the growing demand for network capacity and noting that the “[millimeter wave] bands could be particularly useful in supporting very high capacity networks in areas that require such capacity,”^{13/} the Commission has taken action in the *Spectrum Frontiers* proceeding to make available spectrum in the bands above 24 GHz for fixed and mobile terrestrial use. The Application, however, does not take into consideration – and in some parts conflicts with – the actions the Commission has taken in the *Spectrum Frontiers* proceeding. Therefore, the

^{9/} See T-Mobile September News Release.

^{10/} See T-Mobile News Release, *Hello Un-carrier 12 ... R.I.P. Data Plans T-Mobile Goes All In on Unlimited* (Aug. 18, 2016), <https://newsroom.t-mobile.com/news-and-blogs/rip-data-plans.htm>.

^{11/} See CISCO, CISCO VISUAL NETWORKING INDEX: GLOBAL MOBILE DATA TRAFFIC FORECAST UPDATE, 2015–2020 WHITE PAPER, at 26 (2016), <http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.pdf> (“Because mobile video content has much higher bit rates than other mobile content types, mobile video will generate much of the mobile traffic growth through 2020.”).

^{12/} See Coleman Bazelon and Giulia McHenry, *Mobile Broadband Spectrum: A Vital Resource for the U.S. Economy*, THE BRATTLE GROUP, 2 (May 11, 2015) (“Brattle Group Report”), http://www.ctia.org/docs/default-source/default-document-library/brattle_spectrum_051115.pdf (also noting that employing 1 person in the wireless industry results in an additional 6.5 people finding employment).

^{13/} *FNPRM*, ¶ 7.

Commission should dismiss the Application, or at least delay its consideration of the Application until the future of the spectrum bands specified in the Application are resolved in the *Spectrum Frontiers* proceeding.

II. BOEING'S APPLICATION IS INCONSISTENT WITH THE *REPORT AND ORDER*

The Application requests use of the 37.5-42.5 GHz band for space-to-earth communications and the 47.2-50.2 and 50.4-52.4 GHz bands for earth-to-space communications. The Commission has deferred consideration of Boeing's request to operate in the 42-42.5 GHz and 51.4-52.4 GHz bands.^{14/} The remaining bands under consideration are the 37.5-40 GHz, 40-42 GHz, 47.2-50.2 GHz, and 50.4-51.4 GHz bands.^{15/} In the *Report and Order* in the *Spectrum Frontiers* proceeding, the Commission adopted rules intended to increase terrestrial use of the 37.5-40 GHz band.^{16/}

Specifically, the Commission designated the 37.5-40 GHz band for terrestrial operations on a primary basis, and it limited the satellite use of the band. Non-federal satellite earth stations will be authorized in the 37/39 GHz band on a first-come, first served basis, with protection from terrestrial transmissions under the following conditions: (1) the protection zone around the earth station where no terrestrial operations may be located is no larger than necessary to protect the earth station; (2) no more than three protection zones per PEA will be authorized; (3) the existing and proposed protection zones must not exceed 0.1 percent of the population; (4) the protection zones must not infringe upon any major event venue, arterial street, interstate or U.S. highway, urban mass transit route, passenger railroad, or cruise ship port; and (5) there must be coordination with the terrestrial licensee to ensure that the protection zone does not encompass

^{14/} See Public Notice at 1.

^{15/} See *id.*

^{16/} See *Report and Order*, ¶¶ 73-124. The 40-42 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz bands are addressed in Section III, below.

existing terrestrial operations.^{17/} In addition, to protect against interference from transmit FSS earth stations into 5G networks, the Commission also limited the power flux density (“PFD”) at market borders from satellites in the band toward earth.^{18/} All of the above actions further the Commission’s interest in advancing 5G mobile wireless technologies,^{19/} and notably, the Commission did not seek further comment in the *FNPRM* on the primary designation of the 37.5-40 GHz band for terrestrial use.

The Application, however, asks the Commission to allow increased satellite use of the band by waiving the current PFD limits.^{20/} To support this request, Boeing claims that its NGSO system would provide features that would enable sharing of the 37.5-40.5 GHz band with potential Upper Microwave Flexible Use Service (“UMFUS”) systems. The claim is primarily based on an analysis that makes assumptions and speculations about the parameters of UMFUS systems and potential UMFUS deployment configurations. Boeing has used the same analysis (the same configuration, the same parameters, etc.) in its previous filings in this proceeding,^{21/} and T-Mobile and others have raised questions about Boeing’s assumptions about 5G system characteristics and its methodology in arriving at its conclusions.^{22/} For instance, Straight Path has provided a detailed link budget analysis for various interference scenarios between FSS and

^{17/} See *Report and Order*, ¶¶ 93, 105 n.272.

^{18/} See *id.*, ¶¶ 309-312.

^{19/} See *id.*, ¶ 1 (“These high frequencies previously have been best suited for satellite or fixed microwave applications; however, recent technological breakthroughs have newly enabled advanced mobile services in these bands, notably including very high speed and low latency services. To promote the deployment of these highly beneficial technologies, we are acting quickly – more quickly than most of our counterparts around the world – to establish a coherent framework built on a robust public record.”).

^{20/} See Application at 17-21.

^{21/} See, e.g., Comments of The Boeing Company, GN Docket No. 14-177, *et al.*, at 25-41 (filed Sept. 30, 2016) (“Boeing *FNPRM* Comments”); The Boeing Company *Ex Parte*, GN Docket No. 14-177, *et al.* (filed June 7, 2016).

^{22/} See, e.g., Comments of T-Mobile USA, Inc., GN Docket No. 14-177, *et al.*, at 29-30 (filed Sept. 30, 2016) (“T-Mobile *FNPRM* Comments”); Comments of Straight Path Communications Inc., GN Docket No. 14-177, *et al.*, at 16 (filed Sept. 30, 2016) (“Straight Path *FNPRM* Comments”).

5G services in this band, and its comments in response to the *FNPRM* reiterate that, at the current PFD limit, FSS downlink (space-to-earth) already causes non-negligible impairment to 5G base stations and mobile station receivers.^{23/}

Our concerns regarding Boeing's assumptions still remain, but even using Boeing's own methodology and assumptions disproves Boeing's claim that its proposed NGSO system will not interfere with UMFUS. In particular, the Application includes a parametric analysis of satellite downlink emissions into mobile/handset receivers as shown in the table below.^{24/} This analysis is the same as Boeing provided in previous filings in this proceeding.^{25/} It shows an interference degradation of 0.6 dB from one satellite into mobile/handset receivers and is what Boeing relies on for justification of its request for a PFD limit increase and operation of satellite user equipment in the 37/39 GHz band.

5G Forward Link - Base Station to Mobile		Sat PFD	Worst-case
		5G Isolation	Worst-case
PARAMETER	UNITS	VALUE	
Satellite PFD at Base Station	dBW/m ² /MHz	-105.0	
Antenna Rx Gain at 5G Mobile/Handset ¹	dBi	13.0	
5G Mobile Rx Isolation to Sat signal ¹	dB	0.0	
Satellite Received Power density after mobile/hanset antenna gain	dBW/MHz	-145.3	
5G Mobile/Hanset Noise Figure	dB	7.0	
5G Mobile Receiver Noise Density	dBW/MHz	-137.0	
Interference to Noise ratio, I_{SAT}/N_{5G}	dB	-8.3	
	%	14.8	
Interference Degradation	dB	0.60	

Table 1 – NGSO FSS Interference Into UMFUS 5G User Equipment^{26/}

^{23/} See Straight Path *FNPRM* Comments at 16.

^{24/} See Application at 77.

^{25/} See, e.g., Boeing *FNPRM* Comments at 26; The Boeing Company *Ex Parte*, GN Docket No. 14-177, *et al.* (filed June 7, 2016).

^{26/} Table segments excerpted from Boeing's Application. See Application at 77.

As Table 1 shows, to obtain 0.6 dB interference degradation, Boeing assumes an antenna receiver gain of 13 dBi for the 5G mobile/handset. This is an arbitrary value and, as 5G technology evolves, many other 5G user equipment antenna configurations could be employed. To show the impact of 5G user equipment antenna characteristics on the outcome of Boeing's interference analysis, we replace the 13 dBi with other values. Instead of Boeing's arbitrary values, we use the parameters that Boeing provided in its *FNPRM* comments as the representative parameters for UMFUS transportable/customer premises equipment, and mobile/handset devices.^{27/} Boeing also referenced a 3rd Generation Partnership Project channel modeling report for these antenna models.^{28/} This data is shown in Table 2 below.

5G UMFUS Unit Type	Elements	Size	Peak Gain (dB)	Noise Figure (dB)	EIRP Density (dBm/100 MHz)
Transportable CPE	32	4x8	18.0	7.0	55.0
Transportable CPE	64	8x8	21.0	7.0	55.0
Mobile/Handset	8	2x4	13.0	7.0	43.0
Mobile/Handset	16	4x4	16.0	7.0	43.0

Table 2 – UMFUS User Equipment and Their Receive Characteristics

As a result, we replaced the 5G mobile/handset antenna receiver gain of 13 dBi in Table 1 with the antenna gain values from Table 2 and repeated the analysis using the characteristics of the other Table 2 user equipment. We kept the values of other parameters in Table 1 unchanged. The results are given in Table 3 below.

^{27/} See Boeing *FNPRM* Comments at 33.

^{28/} See *id.* at 32; *Channel model for frequency spectrum above 6 GHz (Release 14)*, 3rd Generation Partnership Project Technical Specification, 3GPP TR 38.900 V1.0.0 (2016-06), Section 7.3 - Antenna models (2016).

		Mobile / Handset	Transportable CPE	Transportable CPE
		4x4	4x8	8x8
Parameter	Unit	Value	Value	Value
Satellite PFD at 5G Mobile/Handset	dBW/m ² /MHz	-105.0	-105.0	-105.0
Antenna Rx Gain at 5G Mobile/Handset	dBi	16.0	18.0	21.0
5G Mobile Rx Isolation to Sat signal	dB	0.0	0.0	0.0
Satellite Received Power density after mobile/handset antenna gain	dBW/MHz	-142.3	-140.3	-137.3
5G Mobile/Handset Noise Figure	dB	7.0	7.0	7.0
5G Mobile Receiver Noise Density	dBW/MHz	-137.0	-137.0	-137.0
Interference to Noise ratio, ISAT/N5G	dB	-5.3	-3.3	-0.3
	%	29.7	47.1	94.0
Interference Degradation	dB	1.1	1.7	2.9

Table 3 – NGSO FSS Interference Into UMFUS 5G User Equipment (T-Mobile Examples)

The results show much higher NGSO FSS interference into UMFUS 5G user equipment than presented by Boeing. These levels of interference degradation are well above 0.5 dB suggested by Straight Path as “the threshold for a manageable rise in the noise floor due to interference from satellite” in the 37/39 GHz band.^{29/} In addition, this level of degradation of mobile service is due to a single satellite; it would be more severe when multiple NGSO satellites signals cause interference into the user equipment receiver – a scenario likely if the Commission accepts additional applications for satellite services in this band.

Moreover, the PFD limits in the 37.5-40 GHz band are still under consideration in the *FNPRM*.^{30/} Boeing recently attempted to address criticisms made against its comments in response to the *FNPRM* – appropriately in the context of the *Spectrum Frontiers* proceeding.^{31/} The robust exchange between parties, including Boeing, in that proceeding only confirms T-

^{29/} See Reply Comments of Straight Path Communications, Inc., GN Docket No. 14-177, *et al.*, at 12 (filed Oct. 31, 2016)

^{30/} See *FNPRM*, ¶ 499.

^{31/} See The Boeing Company *Ex Parte*, GN Docket No. 14-177, *et al.* (filed Nov. 21, 2016).

Mobile's point. Issues related to the band were addressed in the *Report and Order*, and in a way that makes Boeing's proposal untenable. By requesting expanded satellite access to the 37.5-40 GHz band and inhibiting terrestrial mobile use of this spectrum, the Application runs counter to the Commission's actions in the *Spectrum Frontiers* proceeding. Unless the Commission changes the rules adopted in the *Report and Order*, the Boeing request cannot be granted. At the very least, consideration of the use of the band with the PFD limits that Boeing proposes would be premature until such time as the Commission addresses this issue in the context of the *FNPRM*.

III. CONSIDERATION OF THE REMAINING COMPONENTS OF BOEING'S APPLICATION IS PREMATURE

With regard to the 40-42 GHz, 47.2-50.2 GHz, and 50.4-51.4 GHz bands, Boeing's Application is also contrary to and pre-judges many of the Commission's proposals in the *Spectrum Frontiers FNPRM*. The *Spectrum Frontiers* proceeding has a robust record and the participation of a large, varied set of interested parties. The Commission should determine fundamental policy and spectrum allocation matters there, where it will be able to make a fully informed decision as part of a notice and comment rulemaking, and not in the more limited context of Boeing's Application. In contrast, grant of the Application would require the Commission to prematurely decide questions concerning the bands raised in the *FNPRM* without the benefit of a full, detailed record, and to *de facto* allocate the bands for further satellite use. T-Mobile addresses each of the remaining bands at issue below.

40-42 GHz. In the *FNPRM*, the Commission proposed to authorize fixed and mobile operations in the 42-42.5 GHz band under the new Part 30 UMFUS rules.^{32/} Several parties in the *Spectrum Frontiers* proceeding, including T-Mobile, asked the Commission to extend this

^{32/} See *FNPRM*, ¶ 403.

proposed band down to 40 GHz, and to consider the potential use of the entire 40-42.5 GHz band for terrestrial operations, especially as the 40-42 GHz band has been lying fallow.^{33/} Because potential use of these bands for terrestrial operations are under consideration in the *FNPRM*, Commission action on the Application, with respect to those bands, is premature until the Commission addresses the spectrum in the context of the *FNPRM*.

47.2-50.2 GHz. There are no currently authorized FSS operations in the 47.2-50.2 GHz band, although there is an earth-to-space satellite allocation.^{34/} There are also primary non-federal fixed and mobile allocations throughout the 47.2-50.2 GHz band, and while there are currently no service rules for terrestrial operations, the Commission has proposed to authorize fixed and mobile operations under the Part 30 rules in the *FNPRM*.^{35/} As Boeing's comments in response to the *FNPRM* make clear, Boeing's proposed use of this band directly conflicts with the Commission's proposal to allow terrestrial mobile use of the band on a primary basis. Boeing's proposed service would require use of the entire 47.2-50.2 GHz band for FSS uplink,^{36/} and would require "deploy[ing] very large numbers of two-way end user terminals at homes and offices throughout the country[.]"^{37/} making it "very unlikely that there would be significant

^{33/} See, e.g., Comments of CTIA, GN Docket No. 14-177, *et al.*, at 13 (filed Sept. 30, 2016) ("[T]he Commission should consider reallocating the entire 40-42.5 GHz band for mobile uses rather than focusing solely on the 42-42.5 GHz band."); Comments of Ericsson, GN Docket No. 14-177, *et al.*, at 11 (filed Sept. 30, 2016) ("Ericsson also recommends expanding the 42.0-42.5 GHz band, to include the 40.0-42.0 GHz band and the 42.5-43.5 GHz band for a 3.5-GHz-wide band spanning 40.0-43.5 GHz[.]"); Comments of Huawei Technologies, Inc. (USA) and Huawei Technologies Co., Ltd., GN Docket No. 14-177, *et al.*, at 6 (filed Sept. 30, 2016) ("Huawei would recommend, however, for the proposed 42 GHz band that the Commission extend the applicable frequency bands from 42-42.5 GHz to 40-42.5 GHz band for UMFUS."); Straight Path *FNPRM* Comments at 5-6 ("Straight Path . . . urges the Commission to authorize mobile operations in the 40-42 GHz band.").

^{34/} See *FNPRM*, ¶ 411.

^{35/} See *id.*, ¶ 410.

^{36/} See Application at 60.

^{37/} See Boeing *FNPRM* Comments at 15.

usable ‘white spaces’ between adjacent satellite end user terminals within which mobile devices of other communications services could consistently operate.”^{38/}

Moreover, what little UMFUS use Boeing would be “willing to explore”^{39/} would restrict UMFUS to secondary operations at indoor locations only – a proposal that can hardly be considered equitable shared use of the spectrum. The Commission is currently exploring whether and how to permit shared use of the band between FSS and terrestrial operations in the *FNPRM*.^{40/} As T-Mobile discussed in its comments in response to the *FNPRM*,^{41/} it is opposed to such shared use – the entire band should be dedicated for terrestrial use. However, should the Commission choose to permit FSS operations in the band, T-Mobile suggested that the Commission divide the band into a segment where FSS has priority and a segment where UMFUS operations have priority.^{42/} Boeing’s proposed use of the 47.2-50.2 GHz band therefore directly implicates outstanding issues regarding FSS use of this spectrum in the *FNPRM*.

Boeing’s Application also addresses sharing with federal users and protection of passive Earth Exploration Satellite Services and Radioastronomy Service^{43/} – issues similarly under consideration in the *FNPRM*.^{44/} Grant of Boeing’s Application would pre-judge each of the above issues, eliminating options before they can be fully considered. Accordingly, the

^{38/} See *id.*

^{39/} See *id.* at 16.

^{40/} See *FNPRM*, ¶¶ 412-13.

^{41/} See *id.*, ¶ 411; T-Mobile *FNPRM* Comments at 16-17.

^{42/} See, e.g., Boeing *FNPRM* Comments at 19 (“Boeing cannot, however, locate its gateways using the Commission’s proposed restrictions that are based on quantities of gateways in individual counties or Partial Economic Areas (‘PEAs’). To support the broadband demand growth to 2020 and beyond to 2025, Boeing will need to construct and operate several thousand gateways in the United States. The gateways for other V-band satellite systems will need to be accommodated as well.”).

^{43/} See Application at 94-97.

^{44/} See *FNPRM*, ¶¶ 416.

Commission should postpone consideration of Boeing's requested use of the band until the questions in the *FNPRM* are resolved.

50.4-51.4 GHz. In the *FNPRM*, the Commission proposed to authorize fixed and mobile terrestrial operations in this band under the Part 30 rules – in fact, the Commission's proposal includes authorizing terrestrial operations in the spectrum up to 52.6 GHz.^{45/} As with the 47.2-50.2 GHz band, Boeing's proposal for use of the 50.4-51.4 GHz band would severely curtail possibilities for terrestrial mobile operations,^{46/} and the other issues raised by Boeing's Application – such as sharing with federal users^{47/} – are also being considered in the *FNPRM*.^{48/} As such, grant of Boeing's Application would pre-judge the Commission's proposal for use of the 50.4-51.4 GHz band, and it would additionally compromise the Commission's ability to make the extended 50.4-52.6 GHz band available for mobile and fixed operations.

IV. EVEN IF THESE BANDS WERE NOT UNDER CONSIDERATION IN THE PENDING PROCEEDING, AN APPLICATION WOULD NOT BE THE APPROPRIATE CONTEXT TO MAKE ALLOCATION DECISIONS

Boeing's Application requests a *de facto* allocation of the specified bands for satellite use. Even if there were no ongoing proceeding related to these bands, a proposal that fundamentally changes the future use of spectrum bands cannot be addressed in the context of an application proceeding that relies on numerous waiver requests. Instead, the Administrative Procedure Act ("APA") requires that this critical question be addressed in a rulemaking proceeding.

Boeing's Application proposes an entirely different use of the spectrum from that which the Commission intended or previously contemplated. Commission grant of the Application

^{45/} See *id.*, ¶ 420.

^{46/} See Boeing *FNPRM* Comments at 15.

^{47/} See Application at 97.

^{48/} See *FNPRM*, ¶ 422.

would only be permitted through waivers of rules – some of which have only just been adopted and are not yet even effective. However, the APA prohibits the Commission from altering the fundamental use of future spectrum rights through an application process. Instead, the APA requires a rulemaking proceeding – just as the Commission has already initiated.^{49/}

The *Spectrum Frontiers* proceeding is ample evidence that a rulemaking proceeding is the proper forum to address these issues. There, the Commission will decide the use of the target bands that best satisfy the public interest. Action on the Application now will impermissibly circumvent that process.

V. CONCLUSIONS

T-Mobile commends the Commission’s efforts to make more millimeter wave spectrum available through the *Spectrum Frontiers Report and Order* and *FNPRM*. The Application, however, is inconsistent with the Commission’s actions and proposals in that proceeding – running counter to decisions the Commission has already made and pre-judging decisions the Commission has not yet made – and asks that the Commission make complex spectrum allocation determinations without the benefit of the *Spectrum Frontier* proceeding’s robust record. The Commission should therefore reject Boeing’s Application and consider these issues, if at all, in the context of the *Spectrum Frontiers* proceeding.

^{49/} See, e.g., *City of Arlington v. FCC*, 668 F.3d 229, 242 (5th Cir. 2012) (“Adjudications typically resolve disputes among specific individuals in specific cases, whereas rulemaking affects the rights of broad classes of unspecified individuals.”) (citing *Yesler Terrace Cmty. Council v. 51 Cisneros*, 37 F.3d 442, 448 (9th Cir. 1994)) (affirmed, 133 S.Ct. 1863 (2013)). In *City of Arlington*, the 5th Circuit held that the FCC’s mistake in that proceeding was “harmless,” because the Court found that all interested parties participated in the adjudication proceeding, but the same behavior in this proceeding might not be harmless, particularly considering that most parties would reasonably believe the issues are addressed in the *Spectrum Frontiers* proceeding, not in the context of an application. More importantly, the Commission has the opportunity now to conform to the long-standing requirement to conduct a rulemaking proceeding where one is required, rather than test later whether its failure to do so was harmless.

Respectfully submitted,

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December 1, 2016

CERTIFICATE OF SERVICE

I, Radhika U. Bhat, hereby certify that on December 1, 2016 a copy of the foregoing Opposition of T-Mobile USA, Inc. was served by first-class mail, postage paid, on each of the following:

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